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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,773	02/08/2006	Kenji Kaneko	040894-7169	1701

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MORGAN LEWIS & BOCKIUS LLP  
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EXAMINER
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CHAPMAN JR, JOHN E

ART UNIT	PAPER NUMBER
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2856

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/521,773	<b>Applicant(s)</b> KANEKO ET AL.	
	<b>Examiner</b> John E. Chapman	<b>Art Unit</b> 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/21/05</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

### **DETAILED ACTION**

1. The drawings are objected to because block elements 34, 35, 36 and 37 in Fig. 11, 40 and 34 in Fig. 12, and 50 and 53 in Fig. 14 should be identified using an appropriate legend.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The disclosure is objected to because of the following informalities:

Page 11, lines 23-25, the sentence should state that the output from one rate gyroscope 2a is inverted with respect to the output from the other rate gyroscope 2b.

Page 14, lines 6-16 are not clear. In addition, reference should be made to Fig. 4.

Page 15, lines 14-16, the sentence should state that the output from one acceleration sensor 12a is inverted with respect to the output from the other acceleration sensor 12b.

Page 22, lines 15-19 are not clear.

Appropriate correction is required.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is not clear how the two recited steps cooperate so as to comprise “a method for accurately determining an attitude of a moving body,” as recited in the preamble. Indeed, the second step alone comprises “accurately detecting the attitude information of the moving body,” so it is not clear what, if any, purpose the step of “performing arithmetic processing” is. It should be made clear how the step of “performing arithmetic processing” cooperates with the step of “accurately detecting attitude information” so as to comprise a “method for accurately determining an attitude of a moving body.” Note also that “section” in line 8 should be changed to --sections--.

Regarding claim 3, “the apparatus being capable of accurately detecting the attitude information of the moving body” is a functional limitation. It is not clear whether “an arithmetic processing feature” is being claimed, or whether the claim recites only that the apparatus would

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be capable of accurately detecting attitude information if an arithmetic processing feature were to be incorporated into the "high-accuracy attitude detection mechanism." Note also that "section" in line 12 should be changed to --sections--.

Regarding claim 4, the "pair of rate gyroscopes" in line 4 appears to be a double recitation of the "rate gyroscopes" in line 4. Note also that "section" in line 3 should be changed to --sections--.

Regarding claims 5 and 6, note the above remark regarding claim 4.

Regarding claim 7, "the attitude detection section" in line 3 is ambiguous, since a pair of attitude detection sections are recited in claim 3.

Regarding claim 8, "the attitude detection section" in line 3 is ambiguous, since a pair of attitude detection sections are recited in claim 3.

Regarding claim 9, "at least a pair of moving body attitude detection section" in line 3 is unclear, since a pair of attitude detection sections are recited in claim 3.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohashi et al. (JP 6-331357).

Ohashi et al. discloses a method for detecting an attitude (angle of rotation) of a moving body, the moving body comprising a first attitude detection section (A) and a second attitude detection section (B) which provides an output inverted from that of the first attitude detection section, wherein arithmetic processing is performed (step 5 in Fig. 3) which mutually compensates for a variation in the output of both of the attitude detection sections.

8. Claims 2, 9/3 and 9/4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi et al. (JP 6-331357).

The only difference between the claimed invention and the prior art consists in providing a common power supply for the piezoelectric vibration gyroscopes (A and B), which would have been obvious in order to reduce the number of power supplies.

9. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Haeg et al. (6,575,031).

Haeg et al. discloses a method for detecting attitude information (acceleration, displacement) of a moving body (vehicle spindle), the moving body comprising a first attitude detection section (acceleration sensor 22) and a second attitude detection section (acceleration sensor 24) which provides an output inverted from that of the first attitude detection, wherein arithmetic processing is performed (column 2, line 51) which mutually compensates for a variation in the output of both of the attitude detection sections due to acceleration about the Y-axis.

10. Claim 6 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Haeg et al. (6,575,031).

The only difference, if any, between the claimed invention and the prior art consists in providing a pair of inclination sensors. It is well known in the art to use acceleration sensors to measure inclination, since gravitational force is indistinguishable from acceleration. Hence, the acceleration sensors (22 and 24) of Haeg et al. are inherently capable of measuring inclination about the Z-axis in precisely the same manner that they measure acceleration along the X-axis. Accordingly, the acceleration sensors (22 and 24) appear to comprise “inclinometers.” Furthermore, it would have been obvious to one of ordinary skill in the art to use the acceleration sensors (22 and 24) of Haeg et al. to measure inclination about the Z-axis.

11. Claims 2, 9/3, 9/5 and 9/6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haeg et al.

The only difference between the claimed invention and the prior art consists in providing a common power supply for the acceleration sensors (22 and 24), which would have been obvious in order to reduce the number of power supplies.

12. Claims 7, 8, 9/7 and 9/8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi et al. as applied to claim 3 above, and further in view of Haeg et al.

Ohashi et al. discloses a pair of inclination sensors (13 and 13a). It would have been obvious to one of ordinary skill in the art to use the acceleration sensors (22 and 24) of Haeg et al. to measure inclination in the apparatus of Ohashi et al.

Regarding claims 9/7 and 9/8, it would have been obvious to provide a common power supply to reduce the number of power supplies.

13. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi et al. and/or Haeg et al. as applied to claims 3-8 above, and further in view of Atsuta (JP 2001-9772).

Atsuta discloses a walking robot comprising an inclination sensor (52) and gyroscopes (52a, 52b, 52c). It would have been obvious to one of ordinary skill in the art to use the vibration gyroscopes (A and B) of Ohashi et al. to measure rotating speed (yaw rate) and/or the acceleration sensors (22 and 24) of Haeg et al. to measure inclination in the walking robot of Atsuta.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Watson (4,601,206) discloses an accelerometer system comprising a summing



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amplifier (17) and a differencing amplifier (19) for acceleration sensors (15x, 15'y), as well as rate gyroscopes (Gx, Gy, Gz). McPherson et al. (4,873,867) disclose a crash test dummy comprising a pair of accelerometers (27, 29) mounted on opposite sides of a moving body (23). Bennington (4,095,547) discloses an acceleration measuring device comprising tilt sensors (1, 2) and a differential amplifier (4).

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John E. Chapman whose telephone number is (571) 272-2191. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John E Chapman/  
Primary Examiner  
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